

DENVER PC BOARDWATCH

NEWSLETTER FOR ELECTRONIC BBS AND ON-LINE INFORMATION SERVICES

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TELE-BITS

THE BBS LIST

This month **Denver PC Boardwatch** presents a list of **198** electronic bulletin boards/on-line services available in area code **303** - most at no charge. See page **12**. A total of **8** BBS were deleted from the May list with **10** new additions. As always, each number is verified by actual telephone contact within the last **30** days. Additions and major changes to the list are highlighted in bold-face type. Corrections or comment may be addressed via the **Denver PC Boardwatch** Echomail Conference, by Fidonet Mail addressed to **MARION RICKARD** via Net **104** Node **30**, **JACK.RICKARD** on the General Electric **GENle** information service, or **71471,561** on Compuserve.

TANDY ANNOUNCES READ/WRITE CD

On April **21**, Tandy Corporation Chairman John Roach announced the development of a new compact laser disk technology. Apparently, Tandy has developed an erasable version of the heretofore read-only laser disk technology. The Tandy product, termed a Tandy High-intensity Optical Recording (**THOR**) **CD**, is projected to be available in **18-24** months allowing video, audio, and computer data to be stored on conventional compact disks compatible with existing **CD** players. Although write-once-read-many (**WORM**) drive devices have been coming to market recently by such notables as IBM, the Tandy announcement appears to be a breakthrough of major proportions with the ability to read and write to the increasingly popular **CD** media. For PC owners, this would effectively mean storage devices capable of storing **250 MB** (or more) of data in a removable media with video and audio thrown in. **CDs** can be removed, thrown against the wall, painted with peanut butter and jelly, washed off in the sink, and not a single data bit lost in the process. Even the post office would be hard pressed to damage these disks short of re-routing to Namibia. Because of the immense quantities being produced for the audio market, the cost of the media is falling dramatically. Blank **CDs** could conceivably be marketed for **\$3-4** each. This may be the single most important announcement for PC owners of **1988**. We'll follow developments of this technology quite carefully in future months. Tandy Corporation, 1800 One Tandy Center, Fort Worth, TX 76102; **(817)390-3700**.

IBM MACHINES TO READ/WRITE MAC DISKS

Central Point Software has announced a half-slot circuit card for IBM PCs that allow use of existing PC **3.5-inch** disk drives to read and write **400 KB** and **800 KB** Macintosh diskettes. The **\$159** card comes with software allowing PC owners to format, read, write, alter, and otherwise mar and deface Macintosh Diskettes virtually without restriction. Many software packages allow use of Macintosh files on IBMs as well as the reverse. Central Point Software's announcement bridges the mechanical difficulties in doing so. For corporations using both machine types, this card might be useful. Central Point Software, 9700 Southwest Capitol Hiway, Portland, OR 97219; **(503)244-5782**.

BELL NO LONGER TOLLS

After **77** years as **Mountain Bell**, our local telephone company is changing name to **U.S. West Communications**. The new name will also be used by **Northwestern Bell** of Omaha and **Pacific Northwest Bell** of Seattle. This brings the three local telephone companies in U.S. West's **14-state** territory under one banner. The name change will be phased in gradually. Contrary to popular rumor, the name change was **NOT** to honor the founder, Alexander Graham Communications. The actual bell symbol will be retained.

PC WORLD - MOSCOW EDITION

In an April **25** announcement, International Data Group, Inc. announced a joint project with **Radio I Sviyaz**, a **USSR** Communications group, to publish a Russian language edition of **PC World Magazine**. The first issue will make the newsstands in June at a cover price of **2 rubles (\$3.20)**. The publication is aimed at barely **100,000** personal computer users in the **USSR** but apparently, in a dramatic about face, the government there now wants to encourage the widespread use of personal computers. What next? Fidonet Vladivostok?

US WEST/MOUNTAIN BELL GOES DIGITAL

US West/Mountain Bell introduced a dramatic new data network product titled **SwitchNet 56** at an April **13** demonstration at their Millenium Building facility in Englewood. The service is essentially a public data line service allowing transmission of voice, video, fac-

simile, and data at a full-duplex **56 kbps** (kilo-bits-per-second) rate very similar to the currently evolving **ISDN** (Integrated Services Digital Network) standard. The service is initially available in **11** western cities including Twin Cities, Des Moines, Omaha, Colorado Springs, Salt Lake City, Spokane, Portland, Phoenix, Albuquerque, Seattle, and Denver. This is not experimental. Product Manager Marcia Rounds stated that it has been in operation since February and availability is **NOW**.

In the past, to reliably transfer data at speeds above **9.6 kbps**, businesses were forced to lease dedicated data lines between two fixed locations. The lines were paid for **24** hours daily whether they were actually used **20** hours or **20** minutes out of the day. And they were expensive. In part, this was the original impetus to "put the lines to use" driving the formation of such commercial services as The Source, Compuserve, and Delphi.

SwitchNet 56 is more of a pay-as-you-go public switched network allowing small businesses to enjoy high-speed error free data transmission at affordable prices and with the ability to access a flexible assortment of geographical locations as the need arises - effectively a dial up access data net. The service connects personal computers, mainframes, facsimile machines, voice telephones, and video devices with ease, and of course, speed. A full facsimile page can be transmitted in about **3** seconds - faster than any of the machines can actually print. Data transfer is even more impressive. Tolstoy's **WAR AND PEACE** contains **1455** pages of text. Transfer time at **300** bps is around **20** hours while making the trip at **1200** bps would occur in around **5** hours and the more expensive **2400** bps modems capable of a transmission in the **2 1/2** hour range. With **SwitchNet 56** - a little over **7** minutes.

The service is capable of simultaneous voice/data transmission by multiplexing the channel into a **32** kbps voice channel and a **19.2** kbps data channel. If fact, at the demonstration, a video/telephone console made by Datapoint and a facsimile machine by NEC were used to transmit data, voice, and a fairly clear color video view between Seattle and Denver. The video was a peculiar slow-scan view with the picture updating perhaps twice each second for a bizarre, almost comical, view of the participants. And truth to tell, the video went out over **2** separate lines for a total **128** kbps rate while fax and voice shared another line. But in any event, this is the picture telephone service you read about in Popular Mechanics some **25** years ago - it was introduced at a World's Fair in the early sixties. It's here. It's color. And it's pretty impressive.

The minimum equipment required to connect to a **SwitchNet 56** consists of a unit termed a **Channel Service Unit/Data Service Unit (CSU/DSU)**. Frightening though it may sound, the unit is essentially a **CCITT V.35** dataset very much like a modem but without tonal conversion and capable of interface to a four-wire line via an **8-pin** modular **RJ-48S** jack. **RS-232** connection is available for PC use and the price quoted at the demonstration was **\$1950** for an Integrated Network Corporation Model **1056** (8115 Lakeshore Dr., Parker, CO 80134; **(303)841-0176** locally). We would expect dramatic street discounts from that as the obvious opportunity dawns on local PC card manufacturers. Adding digital telephone (sorry folks - your analog sets won't work on these lines), video, or a fax machine can drive equipment costs as high as you'd like to pay.

As for the service itself, **SwitchNet 56** requires a **\$199** installation fee and **\$60** per month which is slightly higher than normal business line rates. The basic rate includes **60** minutes on the system. Local operation over **60** minutes per month is charged at **\$0.10** per minute (**\$6** per hour) and long distance connections between the **11** cities run approximately **\$0.22** per minute (**\$13.20** per hour). This makes the service reasonable and virtually within reach of any small business having any data transfer requirements at all. You can now install high-speed, secure, error-free data transmission between two points for around **\$400** installation and **\$120** per month. Nodes can be added as needed in at any location in any of the **11** service cities.

The one possible fly in the ointment has to do with interface to the other Regional Bell Operating Companies (**RBOCs**). Ameritech, Southern Bell, and Southwestern Bell all have true **ISDN** services operating within their territories. The **ISDN** basic rate service consists of two **64** kbps channels and a third **16** kbps channel termed **2B+D**. Illinois Bell is currently marketing this **ISDN** basic rate service for as little as **\$29.68** per month. Most of these **RBOCs** are attempting to deliver **ISDN** for approximately **1.5** times normal basic telephone service. These **RBOCs** have opted for the full **ISDN** standard now and are applying it to selected business customers in limited "mini-nets" that they will gradually "grow" to large scale. US West seems to be directed toward the more limited single channel **56** kbps service but making it immediately available across a wide spectrum of customers in and between **11** major cities. Which approach will lead to success in this marketplace? It's a reasonably safe bet that the leading minds in all **RBOCs** would love to have even a **110** bps line in to that crystal ball.

For customers, there are a few landmines to watch out for. While the installation and monthly operating costs are reasonable with the **Switchnet 56** service, there are substantial equipment requirements - at this point \$2000 per node. Be absolutely certain that whatever you buy now will work with **ISDN** later. US West will eventually have to join **ISDN**. Real scenario - you buy \$2000 **CSU/DSU** node connections now and you may get to do it again in a year or 18 months. When shopping for equipment, if the vendor begins some happy talk when you ask a direct question about future **ISDN** compatibility - be polite, be gentle, but be gone. The actual switching equipment at US West is already 64 kbps. Our bet is that the conversion to true **ISDN** is already mapped by them and will be much less traumatic on their end than on yours if you don't watch your equipment purchases. Note that even at the most basic level, the telephone connectors used on **Switchnet 56** won't match those mandated by the **ISDN** standard. This may come back to haunt US West/Mountain Bell in the future.

For now, equipment considerations aside, the service itself is available, capable, and reasonably priced. If you need to transport data economically **NOW** rather than **REAL SOON NOW**, this one is up and running. For more information on **SwitchNet 56** in Denver dial (303)896-5577.

COLORADO FAILS TO MAKE THE GRADE

According to the American Coaster Enthusiasts organization, Pennsylvania ranks number one in the nation in the number of roller coasters with a total of 23. California and Ohio are in a dead heat for second with 19 each. Texas has 12 and New York 11.

OFFICE OF THE PRESIDENT

We're well into the final year of President Ron Reagan's eight-year reign as the el toppo honcho of the United States. You may want to give him a call and thank him personally for his efforts these past years. Try the Office of the President at (202)395-3000 (voice) but note that he doesn't always answer the phone personally. Still no word on a presidential BBS.

DELL DROPPING PRICES

Dell Computer of Austin Texas announced an 80386 microprocessor based Model 310 machine April 18. The new model, priced at \$3599, includes a 40 MB hard drive, monochrome monitor, and 20 MHz 80386 microprocessor. The motherboard sports 1 MB of **RAM** with a 32 KB static **RAM** cache to speed operations. One parallel and two serial ports are included along with a choice of 5 1/4 or 3 1/2-inch floppy drives. Dell Computer Corporation, 9505 Arboretum Blvd., Austin, TX 78759; (800)426-5150 for orders/pricing info or (800)624-9896 for tech support.

FAX POPULARITY GROWING

According to CAP International Inc., about 465,000 fax machines were sold in the US during 1987 marking a 143% increase over 1986. This year sales of the units are predicted to grow another 53% to 710,000 units. While fax machines are hardly new, they are dropping in price with many available for \$1000-\$2000. With the growing number of home businesses and small businesses depending on fast communications, the ability to mail a photo-image of a page with the ease and expense of a simple long distance telephone call is very attractive. Locally Interwest Fax, (303)534-7100, offers an **NEC PFII** fax for \$1169, while Associated Business Products, (303)295-0757, carries a **Canon Faxphone 8** model for \$1099. As prices continue to fall, the fax boom should accelerate.

US SPRINT MIRED IN BILLING

Data Communications Magazine reports that the Florida State Public Utilities Commission totals 287 long distance service complaint reports against **US Sprint** versus 153 for AT&T and 59 for MCI. Of the 287 filed against US Sprint, 236 concerned billing matters and 51 were service related. Teleconnect Magazine implies that US Sprint may be by far the least expensive long distance carrier since many customers never receive a bill at all. Apparently, a number of PC owners subscribing to US Sprint/Telenet's popular PC Pursuit service haven't been so lucky. Apparently the Telenet arm of the company has billed thousands of PC Pursuit subscribers for daytime usage that simply never occurred. Last year US Sprint lost \$1.1 billion on revenues of \$3.1 billion. What goes around comes around. In an effort to compare some long distance calls last autumn we called several long distance companies and asked for charges for three hypothetical calls. The US Sprint service representative simply told us she didn't think she cared to quote three calls - she would give us one - take it or leave it. We asked to speak with her supervisor and were told he was busy but would return our call in a few minutes. So far - 8 months. We're pretty sure we can wait longer than they can continue to lose over a \$1 billion a year.

AREA CODE FEVER

The state of Colorado was served by a single area code, 303, until this past March when the new 719 code was added to serve the southern half of the state. Well it seems a few other states have complained that if Colorado is going to get a new area code they want one as well. Florida splits 305 into 305 and 407. New York splits their 212 into 212 and 718. Eastern Massachusetts will get 508 in July and Chicago is slated for a 708 in November.

PC ANSWERING MACHINE

The Complete PC offers an add-on circuit card and software package for PC compatible computers. The unit answers the telephone, plays a message in the user's digitized voice, and records the response with date/time stamp. The system also provides special frequent caller mailboxes, voice prompts, and help menus making this virtually a "voice BBS". The unit lists for **\$399**. The Complete PC, 521 Cottonwood Dr., Milpitas, CA 95035; (408)434-0145.

MORE ON WORDPERFECT

It seems like everyone is erecting these little touch-tone responsive message systems where a voice reads a menu and you can select the category of choice using a touch tone phone by pressing the number of the menu selection. **WordPerfect Corp.** has recently released version **5.0** of its immensely popular word processing package. The company already has a reputation for the best on-line support in the industry. A toll free voice support line operates at (800)321-5906. According to Inbound/Outbound magazine, the line receives **4,150** calls daily - over **80,000** calls a year. No attempt is made at user registration ID etc. Word Perfect answers questions on the product from anybody. The company also maintains a product support area on the **Compuserve** Information System. Simply enter **GO WPSG** at any prompt. An independant Word Perfect Support Group operates out of Baltimore and publishes a monthly newsletter titled the Word Perfectionist at **\$48** annual first class and **\$36** annual at third class postage. They also operate one of the touch-tone responsive numbers at (301)889-7895. Word Perfect Support Group, PO Box 1577, Baltimore, MD 21203. Word Perfect Corporation, 288 West Center St., Orem, UT 84057; (801)225-5000.

NEW AT&T HEAD

AT&T Chairman James Olson died of cancer just a few days prior to the company's annual shareholder meeting in Denver this past April. Robert E. Allen succeeds Olson as head of the company. AT&T is currently enjoying rising profits of **\$492** million on first quarter sales of **\$8.4** billion.

HOT 386 MOTHERBOARD UPGRADE.

Monolithic Systems Corporation has been in the memory business since **1969**. The company operates right out of Inverness Park here in the Denver area. In the past, they've concentrated on add-on memory boards for minicomputers such as the **DEC PDP** and **VAX** series.

About **18** months ago, after a few rough quarters, the company repositioned their sights on the upscale PC/workstation market. Currently, they offer one of the **386**est AT bus motherboards available for upgrade of existing **XTs** and **ATs** to the newer **80386** microprocessor technology.

The motherboard, titled the **Microframe 386**, features the Chips and Technologies **VLSI 80386** chip set. Notably, Monolithic opted for the Single In-line Package (**SIP**) memory components. This allows them to offer the system with **1** or **2 MB** on the Microframe using **256K SIPs** or up to **8 MB** using the **1 MB SIP** chips. According to Advertising/Communications manager Gary Null, the company's main difficulty is getting enough **RAM** chips to fill demand. The only available sources for the components are in the far east and the current US trade restrictions are squeezing Monolithic pretty effectively.

The **Microframe 386** is available in **16 MHz** and **20 MHz** versions and can be used to upgrade either **XT** or **AT** systems with a minimum of fit/conversion difficulties. The boards feature a hot **Norton 4.0 SI** performance index of **17.6** and **22** respectively. They also feature six **16-bit** expansion slots and two **8-bit** slots. Keep in mind that with up to **8 MB** of **RAM** on the motherboard itself, a slot for memory expansion should be unnecessary. The board makes the trip into your machine for **\$2344** for the **16 MHz/1 MB** version, **\$3141** for the **20 MHz/1MB** and **\$6735** for a full bag **8MB** unit. Notably, a full technical reference manual is currently under development in English and should be available soon at about **\$50**.

Monolithic makes another board of notable interest to those considering development of an information service. Essentially, it's a multiport serial adapter titled the **Connect/AT**. This unit comes in **4-port**, **8-port**, or **16-port** models and up to four **Connect/AT** boards can be ganged together to provide **64 RS-232** serial ports from a single machine. The board uses an **80186** microprocessor to relieve the host micro of most duties. Because of this, it is feasible to run a full **64** ports out of their **20 MHz 386** machine with reasonably acceptable response times. The **Connect/AT** is actually designed and manufactured by Chase Research of Great Britain. Monolithic has exclusive marketing and manufacture rights here in the US. The **Connect/AT** is again fairly dear at **\$996** for a **4-port** model, **\$1297** for the **8-port** version and **\$1695** for the full **16-port** version. The card provides a single cable out the back of the host PC to a well constructed breakout box type unit with an array of **DB25F** connectors. Modems or terminals are then connected to this distribution box using standard **RS-232** cables. The board also comes complete with software drivers for

SCO Xenix V, Unix V.2 or V.3, PC-MOS 386, and Digital Research Concurrent DOS 286 operating systems. Monolithic is releasing a PS/2 Microchannel version of this board as well as a JustRAM memory board. These products will be announced at the spring Comdex in May. Monolithic Systems Corp., 84 Inverness Circle East, Englewood, CO 80112; (800)525-7661; (303)790-7400.

Locally, the exclusive retail distributor for Monolithic products is **Denver Tech Computers** at 6801 South Dayton St., Englewood, CO 80112; (303)799-9229 (voice); (303)799-4813 (data).

LOCAL ACCESS

THE MIND IS A TERRIBLE THING

But we **CAN** stamp it out in our lifetime. Bart Henthorn, of Bloomfield-based Terus Corporation, has operated a BBS for some time now at (303)341-1404. Until recently, **TERUS REGUSER** was restricted to registered users of the company's **MINDS** text indexing/retrieval shareware software product. The board is now open to the general public and all are invited to logon and try out the **MINDS** product.

MINDS is a text indexing/retrieval package similar in many ways to such popular products as **ZyIndex**. **MINDS** is somewhat unique in that it allows plain English language queries such as *"Where is that letter I wrote to Oliver North"* or *"How many flavis wavens did we sell to Universal Petrolated Widget Company in Iran during November 1986"*. The program very intelligently discards all superfluous words such as "very, did, the, is, that, etc.", and searches for various combinations of the remaining "hot" keywords using a remarkably thorough logic weave. The resulting matches from a text file are displayed using a fairly easy to use text viewing facility.

Written in the **C** programming language, **MINDS** moves briskly down the road in speed of operation. At times, you may be a bit unsure that anything has happened until you actually view the matches. This speed exacts its price however. All text files searched by **MINDS** must be pre-indexed using the **MINDS AUTHORIZING SYSTEM (MAS)**.

Mr. Henthorn has now made a few modifications to **MINDS** and it now works on-line. It can be used as a very effective free-form text database program for electronic bulletin board systems. In fact, almost any text file can now be treated as a free-form database and displayed on-line by the sysop. To gain a glimmer of what impact this could have on the future of electronic services, dial up Mr. Henthorn's BBS and have a look. To show off the program's more fetching

aspects, he currently provides the entire text of Gannett New Media's **USA TODAY** newspaper on-line as well as a host of shareware documentation files. As you may have read in our May issue, a number of local boards are carrying the **USA TODAY** newspaper service for their users. Terus also constructs a **MINDS** context set (the indexed file) each morning for the received **USA TODAY** text file. You can dial up the **TERUS** board and use **MINDS** to "search and retrieve" stories from **USA TODAY** on subjects of interest. We tried **COMPUTERS** and came up with 9 matches in the file. After reading each one, simply press **TAB** to sequence to the next item. Page Up, Page Down, and the up and down cursor arrows all work as expected along with a rich set of other navigation keys available. Enter **COMMUNICATIONS** and retrieve seven other entries. "Show me everything on **DIRIGIBLE RENOVATION**" got us nowhere. A search for "all on Department of Redundancy Department" produced several references to the Justice Department and Mr. Meese's difficulties. Close call - we're going to rule that **MINDS** scored a match here.

While **MINDS** is an interesting product in native form, the **TTY** on-line data version is unique, well done, and if widely distributed would quite likely change the nature of the electronic bulletin board system interface on a nationwide scale. With very little effort, sysops will be able to present a variety of text data in a very usable free-form textbase format on-line. The applications for this are virtually without limit. It is very easy to use for the novice, and extremely powerful for those that catch on to the subtleties of the search methodology employed.

LASERWRITING BBS

Greenwood Plaza Printshop has inaugurated a Desktop Publishing support BBS titled **LASERWRITING DESKTOP PUBLISHING SERVICE BUREAU BBS** at (303)741-4122. The board runs on a Macintosh computer using **RedRyder** software 24 hours daily. The board contains some downloadable screenfonts for various typestyles for the Macintosh computer. The main role of the board is for communications support for the firm's printing/typesetting services. The company is fairly well equipped to support desktop publishing requirements. Image scanning can be performed using a **Microtek 300A** scanner and the resulting files downloaded from the board. Standard **300 dpi** laser printer output can be produced from Postscript files via an **Apple Laserwriter II NT** printer for \$2 per page up to 4 pages, \$1.50 per page in quantities of 9-12 pages and so on down to \$0.35 per page in quantities over 300 pages. Notably, the company specializes in **Liotronic 300** typesetting output and they use a **Postscript** software driver titled **RIP2**

that speeds up operation significantly. As a result, they offer the most reasonably priced **Linotronic 1270** and **2540** line-per-inch output we've found anywhere. Prices start at a mere \$5 per page in small quantities with rates as low as \$3 per page in quantity. Many services are typically charging \$9-\$12 for this high quality type of output. The company also provides full printing services, and disk conversion between Macintosh and IBM formats. Bill Wright, one of the principals in the business says they'll try to accommodate whatever special requests customers might have. The BBS itself is none too extravagant and first time callers won't find much to look at. Upgraded user status really doesn't bring much either. And a week after our initial logon it finally took a voice call to (303)758-8844 to get it. But, for those needing desktop publishing support, this BBS serves adequately as a window to a full-featured support shop with some very good typesetting prices. The company sports several sites in the area. Address mail to 3801 East Florida, Denver, CO 80210-2543.

SILVER STREAK BBS

Dennis McKinney of Littleton brings us a relatively new system with **THE SILVER STREAK BBS** at (303)790-2534. The system operates using **Wildcat Version 1.11** BBS software and is sponsored by Hawk's Liquor store on East 22nd Ave. The board provides some interesting scientific/engineering programs as well as some useful Turbo Pascal Utilities. A **BASIC** program for electronic formulas, a graphic chemistry program, and a **NASA** orbit simulator were a few examples. The board also features a Mustang software program titled **CATSTAT** that provides some very useful statistical data about BBS usage. For example: we found the average user's age was 32.6; he averaged 22.4 minutes per call; was most likely to call between 9 and 10 pm; Nearly a quarter of all calls were received on Sunday (24%); 300 bps = 14%; 1200 bps = 67%; 2400 bps = 19%. The layout of this board was very attractive and the available files were quite interesting.

ON-LINE SHOPPING SERVICE

In our December issue we mentioned a rather unique system run by Pete Dempsey of Boulder with his **ON-LINE SHOPPING SERVICE** operating at (303)442-5125. The service allows you to shop for groceries at **King Soopers** grocery store on-line using your modem and personal computer. The groceries are delivered to your home for a delivery charge of \$5 plus 5% of your order. The service sports a database of 10,000 items from King Sooper's inventory (33 different entries for peanut butter). You simply browse through menus in different categories and press the

space bar when you see something you like - impulse buying gone wild.

The program also allows you to jump directly to an area by entering the first few characters: **MAR** will take you to about 50 different brands/sizes of margarine almost instantly. Each product descriptor can be up 40 characters in length versus the 18 available on most supermarket sales slips. There are 4 daily delivery periods. Shoppers can also order by voice at (303)442-5510 24-hours daily if they find themselves temporarily without data capability.

In our December story we reported that the service was only available in the Boulder area. Mr. Dempsey called this month to let us know that the service now serves the entire Denver metro area and Castle Rock. This is done via a network of delivery people throughout the area. Additionally, the service seems to be operating using **The Chairman** BBS software allowing E-Mail as well as a list of current sale items. If nothing else, you could dial this service to find what King Sooper's has on sale.

To serve the wider Denver area, Mr. Dempsey has set up a network of sub-franchisees that download the orders for their area from his system and make the deliveries for a cut of the action. There are still a few areas open. If you have a computer and modem and fancy the life of a professional grocery shopper, contact Mr. Dempsey. On-Line Shopping Service, 1819 Spruce St., Boulder, CO 80302; (303)442-5510 (voice).

SNARFQUEST BBS

John Denny of Roxborough Park brings us a new BBS with **SNARFQUEST 104/604** operating at (303)973-9402. The board runs on a **HOT INTEL 80386** PC with a 71 MB Micropolis drive and 10 MB of RAM. According to John, this unit screeches along at 28 MHz. The BBS runs on **OPUS** software and offers a delightful selection of game software and readMAC files as well as a wealth of Fidonet Echomail areas. Notably, **SNARFQUEST** offers a full screen message editor titled **VERRIDE**. At the time of this writing, **SNARFQUEST** was the only BBS in the area to offer this editor. By the time you read this, it will probably be on every **OPUS** board in town. The editor is faster and easier to use than the **OPED** editor so prevalent on other Opus boards. John also runs another BBS in **THE WHISKEY BARREL** at (303)351-0612. It's a different name and a different number but he claims it's running on the same machine. For anyone who does actually bag a **SNARF**, we advise you to clean it immediately, soak overnight, and **RINSE THOROUGHLY** just before cooking.

LOCAL STATISTICS

Last January we provided a brief statistical analysis of the breakdown of BBS in the area by hardware type, BBS software, and connect speeds. In the hardware breakdown shown below, IBM compatible machines still make up half our list. Though the Macintosh has garnered a great deal of positive press recently, it simply has not flowered in the BBS community with a showing of just 2.52% of our local community. Perhaps as more BBS software for the Mac becomes available, this will change.

BBS HARDWARE		
TYPE	NUMBER	PERCENT
IBM	98	49.50
Apple	28	14.14
Commodore 64/128	22	11.11
Atari	10	5.05
TRS	7	3.53
Macintosh	5	2.52
Amiga	4	2.02
Texas Instruments	4	2.02
Other	20	10.1

Many of the hardware types run on one of just a few software programs available. IBM compatible machines now have a variety of BBS software to choose from. Local developers eSoft, with The Bread Board System, and Adam Hudson, with his popular QuickBBS, both make a respectable showing with TBBS tied with Opus as top system with 23 and QuickBBS tripling in numbers since our January issue.

IBM BBS SOFTWARE	
TYPE	NUMBER
TBBS	23
OPUS	23
QuickBBS	17
RBBS	9
Fido	6
PC Board	5
Wildcat	3
Other	12

In the transmission speeds supported, there have been some changes since January. Most notable was the continued evolution to higher speeds with the 9600 category doubling from a 3.75% showing in January to 7.57% this month. Note that US Robotics has been very successful marketing their HST 9600 to sysops at the \$500 sysop special price. Of the 15 9600s operating in the area, it would seem that 13 are USR HST.

SUPPORTED SPEEDS		
HIGHEST BPI	NUMBER	PERCENT
300	8	4.04
1200	107	54.04
2400	68	34.34
9600	15	7.57

LONG DISTANCE USA

PROGRAMMER'S BBS

Gerry Powers runs one of the most thoroughly useful electronic bulletin boards for programmers we've found anywhere. The board, titled **TURBO SOURCE SEARCH** operates from Scituate Massachusetts at (617)545-9131. It features an absolutely unlimited treasure trove of subroutines and files for Turbo Basic, Turbo C, Turbo Pascal, Quick Basic, Quick C, Assembly, and Modula 2 programmers. There are subroutines here to do everything from XMODEM transfers to financial/statistical calculations to your biorythms all in the language of your choice. Additionally, Mr. Powers offers a very attractive disk mailing service that would probably save substantial pesos off your long distance charges. We found numerous anti-viral programs on-line and were allowed to download four short ones unmolested as a first time user of the board. Extended access is available via a mail-in registration as well and for those of a programming inclination - likely worth it for the disk discounts and extended on-line time. The board carries over 100 MB on-line and much more is listed but available via the mail program only. Finally, this board carries the full program files from the **PROGRAMMER'S JOURNAL MAGAZINE** on-line. Highly recommended for technical users. Turbo Source Search, PO Box 11, Scituate, MA 02066.

NEW YORK EDUCATIONAL BBS

The New York City Educational Network BBS, otherwise known as **NYCENET BBS**, operates at **(212)769-0550**. The system is dedicated to interactive information exchange between teachers, students, and others with interest in education for the New York City School System. Currently the board operates via a four-line multiuser **RBBS** system. A major conversion project is underway to port the system to an **80386** based custom bulletin board featuring **CD ROM** and **Write-Once-Read-Many (WORM)** drives as well as **600 MB** of hard disk capacity.

The system has over **100 MB** of files available for download in a number of topic areas. Utilities for **dBase**, **Clipper**, and **Wampum** databases were noticeable as well as a number of IBM telecommunications files and programs for **Apple**, **Atari**, and **Commodore**. Notably, a series of educational conference transcripts were archived as well. The system is totally free and open to all. Registration requirements are minimal and an enormous variety of interesting material is available.

The board is operated by **Fred Goldberg**, Manhattan Regional Supervisor for the Office of Technical Assistance and Support, New York City Board of Education. His office is located in **Martin Luther King Jr. High School** at **122 Amsterdam Ave.**, New York City, NY **10027**. He can be reached voice at **(212)769-2710**. This is a thoroughly fascinating on-line service.

UNIX/XENIX BBS SOFTWARE

MMB Development Corporation of Manhattan Beach California markets a multiline BBS software program titled **TEAMate** for use on PC units running **Unix** or **Xenix**. The software is notable in that it requires connecting terminal programs to emulate **VT100** terminals. This is not as restrictive as it perhaps once was since a number of shareware communications programs easily emulate this common terminal configuration. The reward is that items are selected from menus using a sliding bar cursor. Simply use the up and down arrow keys to select the menu item desired and press **ENTER** to access it. Since this operation is very common among application programs, the result is that **TEAMate** is very intuitive to use.

The company markets the software as an "information system" allowing you to set up your own information service. The program is priced at a remarkably bold **\$2495** but it constitutes one of the few BBS programs aimed directly at the Unix market. The company operates a BBS at **(213)545-0853**. Use **PUBLIC** as login name the first time. **MMB Development Corporation**, 1021 North Sepulveda Blvd, Suite K, Manhattan Beach, CA 90266; **(800)832-6022**.

U.S. NAVY ZENITH SUPPORT BBS

The Navy Regional Data Automation Center (**NAR-DAC**) operates a BBS at **(804)445-1627** and **(804)445-1121** from the Naval Air Station at Norfolk Virginia. The board is operated by **Jerry Dew** to provide a means for the DOD microcomputer community to communicate with other users, share software, and promulgate tips and techniques for using Zenith microcomputers. Zenith won an immense contract to supply the Navy with microcomputers and the BBS is used as a means of sharing information on the units. The board, run using **RBBS** software, offers a large bulletin list including a list of **Federal Microcomputer User Groups** located around the country. While quite a bit of the shareware is a bit dated, Zenith owners would likely find this board a valuable resource.

STOCK FORECASTS ON-LINE

Dr. Wallace Lin of Sunnvale California operates an unusual system with **STOCK FORECASTS ON-LINE** at **(408)733-9341**. The system provides stock quotes and projections on ostensibly **6000 NYSE**, **AMEX**, and **OTC** stocks with projections made for **5-25**, **10-30**, **15-35**, and **20-40** day periods. The system runs on **TBBS** software and you can check up to **6** stocks per **24** hour period at no charge. The quotes are **12 days old** however and note that you must know the ticker symbol for the stocks you desire to check in advance. The system operates on a subscription basis at **\$7.20** per hour. You send in **\$100** to get things rolling and you can join the VIP service for **\$200** per month. The operator assures you that you will make that much and more following his stock trade advice. We found the come-on just a bit thick with this board and frankly we just can't believe this guy has a single non-maternal subscriber. He claims stock quotes are **\$158** per hour (**\$2.64** per minute) on Dow Jones News Retrieval making his **\$7.20** per hour relatively inexpensive. Dow Jones would likely find that interesting if blatantly untrue. Continual references to **FREELOADERS** and a more or less never-ending diatribe to send in your **\$100** would be moderately revolting except that it was so badly done that it was in a bizarre sense captivating reading. Little was missing here - turn in your friends, if they subscribe you get **\$20** - etc. If you would like to see every possible crass marketing ploy ever dreamed up stuffed into one bulletin board system, please check this guy out - **A SCREAM!!** **Dr. Wallace Lin**, PO Box 60842, Sunnyvale, CA 94088-0842

SHAREWARE

SUPER UNARCHIVE UTILITY

Gary Conway of Infinity Design Concepts, Inc. of Louisville brings us a fabulous little utility program with Version 2.0 of **NARC**. The program comes in the file **NARC20.ARC** released April 19, 1988 and ostensibly takes its name from the term **un-ARC**.

As most data communications enthusiasts know, to effectively transport the sometimes large group of files that may make up the typical applications program, a group of utilities has evolved to speed up the operation. They are called archive utilities. Essentially, they combine a series of files into a single archival file with a **.ARC** file extension. In the process, they compress the files using one of several compression methods - often into half the space of the original files. For example, you may have a program titled **DUZALNOW** consisting of 11 files and occupying 165 KB of disk real estate. Using an archive utility, you can combine all these files into a single file **DUZALNOW.ARC** of about 85 KB in size. This single file can then be moved quite easily by modem from one board to another. A single file transfer is performed and disk requirements are minimized. To use **DUZALNOW**, you must first unarchive or extract each file from the archive to reproduce the original 11 component files. This is done using the original archive utility program.

Because of the obvious advantages, these **ARC** utility programs have proliferated. The most ubiquitous is titled **ARC521** and its produced by System Enhancement Associates. More Recently, Phil Katz has developed a series of similar utilities titled **PKARC** and **PKXARC** that operate similarly but notably faster. Lately, it would seem that the **PK** series is holding sway as the most popular of the archive utilities largely due to these dramatic speed advantages.

One thing shared by all the archive utilities is a rather cryptic command line interface. With all the various commands that have evolved to allow printing of archived files, viewing, adding, deleting, and more, this once simple command line interface has become somewhat complex. Mr. Conway has developed an answer to this in **NARC Version 2.0**. The program provides a clear, visual, window-like interface for viewing, printing, and extracting archived files. In fact, it looks much like a DOS shell program complete with a facile directory tree program as good as any on the market. More importantly, you can examine the contents, even read files on screen, from archives using a marvelously intuitive point-and-shoot interface we find charming, capable, and amazingly fast.

The key to this is the development of the program. It was written in over 13,000 lines of source code - all 8088 assembly language. For size and speed you still cannot beat assembly language with anything else and it will likely ever be so. The **EXE** file for this program is 28,215 bytes in size and does NOT require any of the existing archive utilities to operate.

Additionally, the program provides on-screen help, drop down menus complete with bells and whistles and enough visual goodies to keep your four-year-old unarchiving files for days. New in this version of **NARC** is a very fast directory tree function that makes navigating one or more hard disk drives a breeze. This function is normally found on the better DOS shell programs to provide you with a visual on-screen map of the various directories and subdirectories occupying your hard drive. Simply move the cursor to a likely directory on the map and press **ENTER** to get a list of all archived files in the directory.

Once you've located a **.ARC** file to unarchive, you essentially take aim with the cursor and press **ENTER**. A list of all component files contained in the archive appears on screen and a Lotus 123-style menu bar appears across the bottom of the screen with entries for **EXTRACT**, **VIEW**, **PRINT**, etc. Select the **EXTRACT** function and the program will ask you for a destination. Enter a drive and path and the file will be unarchived directly to that destination. You can also use the space bar to tag individual files from the list and extract only the tagged items.

One of the features we liked best has to do with viewing archived files. Simply position the cursor on a **.DOC** or a **.TXT** or other file within the archive and select **VIEW**. The text immediately appears on screen within a very capable viewing facility allowing you to navigate through the file perusing the contents at will. By reading this accompanying documentation, you may find you don't really need to unarchive the program file at all.

NARC includes provisions for using your favorite text editor. Press **F9** and you will find yourself immediately in your text editor. Another key allows you to enter DOS commands.

NARC works with all known compression techniques including the controversial but effective squashing technique favored by **PKARC**. Our only real complaint about the program is that to use your own editor and the help files associated with **NARC**, you must set a couple of variables in your DOS environment using **SET** statements in **AUTOEXEC.BAT**. While this is bothersome, it's hardly unusual.

Overall, we were very impressed with **NARC**. Registration is an acceptable **\$20**. The program is fast, compact, and a notable interface improvement over anything done earlier. If you download any software at all from BBS/on-line services, this utility belongs in your toolbox. Gary Conway, Infinity Design Concepts, Inc., 1052 Parkway Drive, Louisville, KY 40217. The support BBS for this product is Curt Edwards **SOFTSTONE BBS** also in Louisville at (502)241-4109. Locally, **NARC20.ARC** is available for download from **SnarfQuest BBS** at (303)973-9402.

SCOOPLINE 976 SERVICE

The US House of Representatives passed a bill to prohibit use of **976** services for pornographic messages on **April 19**. The Senate approved a similar measure and attached it to a **\$7.5** billion dollar extension of federal education programs two days later. The bill was sent to the President for signature and he was expected to sign it. Despite speculation that the provision may be unconstitutional, it effectively bans pornography via the **976 Scoopline** service. This may effectively kill **976** services entirely. Why? Take a look at the classified section of your local paper. There are pages of **976** services advertised but almost all seem sexually oriented - not a handful of others. Many of the sex-by-phone ilk cost as much as **\$25** per call. There are few things (other than phone sex apparently) that anyone is willing to pay that much to connect to voice. Why are sex-by-phone services so much in the majority?

Aside from the expenses incurred in gathering legitimate information the public might be tempted to pay for, and aside from the costs of voice recording equipment or computer equipment necessary to operate such a service, and aside from the normal costs of a business location, the prospective **976 Scoopline** entrepreneur will be expected to pay for telephone line service. Seems obvious. Essentially, the **976** service allows the entrepreneur to charge clients for calling a number. The telephone company bills the client, extracts a per minute charge, and passes the remaining proceeds onto the information provider. That's how we **THOUGHT** it worked!

ACTUALLY, it is nothing so simple, straightforward, or positive as that. A call to US West Communication's **976** marketing service ((303)896-5577) provides ample evidence that the seamy activity is working on both ends of this telephone line. US West Communications has publicly decried the sex-by-phone services while literally trucking the proceeds to the

bank while no one was looking. Let's examine the charges due on a typical service.

To establish a **976** line at all, the prospective provider first pays an **\$1800** fee to setup the service. Amazingly, this setup charge doesn't cover installation, or anything else that we could determine from our conversation with the **976** marketing representative. It's just **\$1800** for the telephone company. Not that there aren't installation charges. Denver Main switching area requires a **\$76.50** per line installation charge with a two-line minimum (**\$153**). Outside of the immediate downtown area, you'll part with a cool **\$450.50** per line (minimum 2) to physically make the connection. Incredibly, this doesn't really get anything installed other than the switch thrown down at the main office. Internal jacks and wiring are your responsibility and in some cases even the line to the building can be charged to you.

Each month, you also pay US West Communications a **\$40.78** accounting fee to recompense them for keeping the books and mailing you a check each month. In addition to the **\$0.15** first minute/ **\$0.05** subsequent minute cut of the action, US West Communications also charges **\$0.02** each time a caller receives a busy signal from your system. There is also a per line service charge of **\$23.95** per line per month - again in the downtown area only. Anywhere else it runs as much as **\$82.50** per line per month. This varies depending on actual location and again there is a two-line minimum.

To install a simple two-line service in Littleton's **973** exchange:

- Setup: **\$1800**
- Installation 2 @ **\$450.50** **\$ 901**
- Monthly charges **\$ 205.38**
- Connect Time **\$ 0.15/0.05** per minute.

For those without sunshine for their calculator: **\$2701** to install and **\$205.38** each month **PLUS** the time charges for a simple two-line system.

The company requires the setup fee, installation, and two months of line charges to be paid up front. Our hypothetical service would require a check for **\$3111.76** up front. This is certainly enough to make me burst into a spate of profane obscenity and I wouldn't care if the whole world dialed in to hear it. This is probably how dirty talk got on the lines in the first place.

While the **\$40** accounting fee seems logical, what would the per line service charge cover? And if it covers service, then what's the **\$0.15** and the nickel

per minute for? Installation charges - even exorbitant ones are quite business as usual. So once the \$450 per line install is paid, where does the \$1800 come into play? Further, you will be billed \$0.02 for each call to your 976 number resulting in a busy signal. Ostensibly, this is to keep you adding lines on a regular basis if you do start to make any money. Finally, if it does finally dawn on you that the telephone company is making all the money and you decide to raise your prices, US West Communications stands eager and willing to make the change. Cost? A flat \$350 every time you change your rates.

With the current 976 rate structure, it's any wonder that legitimate information providers are unable to compete in a market where US West Communications is essentially gouging those mentally crippled enough to send their paychecks to the phone company to hear dirty talk. It would appear that the actual producers of this obscenity are merely acting as middlemen.

Undoubtedly, some services do turn a profit. In the interest of fairness we intended to point this up by simply listing the average net monthly payout from US West Communication to 976 information providers after all telephone service deductions were made. As soon as the question was posed, our helpful friends at the phone company asked if they could "get back to us" and we thereafter entered a game of telephone tag that has to be historic in scope. We were finally referred to Mr. Steve Gilstrap of the Information Provider Markets Group. For over 10 days we attempted to reach Mr. Gilstrap without success. Finally, Ms. Lillian Robertson agreed to speak with us. She assured us that data on this average monthly net figure was not available despite the fact that they did do the accounting for all 976 services. She did concede that some services did run negative monthly amounts.

We applaud Congress's attempt to ban the pornographic use of 976 services despite the obvious constitutional implications. And we urge US West Communications and all RBOCs to provide gateways for legitimate information entrepreneurs to make their wares available to the public. However, the current 976 Scoopline service is totally unacceptable for any legitimate information enterprise. As we enter the information age, if our future access to information services is to be controlled by US West Communications in the fashion of the current 976 voice information services - we have a little problem.

EDITOR'S NOTES

Going into the summer season we would expect data communications and PC activity in general to cool down a bit as the weather warms. Strangely, interest seems, if anything, to be up. Part of the reason lies with the continued development of new and better on-line services. The year 1988 may be a real growth period for data communications.

This month's local survey includes some publishing and grocery shopping services representative of the type of specialized information/service industry offering we look to see more of in the future. To be sure, the technical hobbyist running a BBS in the support of shareware and public domain software is still very popular. The current virus hysteria will not end that. But we do expect to see a new breed of "inforpreneur" emerge to marry the technical developments forged by the BBS hobbyist to real world needs such as groceries, printing services, and perhaps a telephone book.

With US West Communication's announcement of Switchnet 56 and the other RBOC's development of ISDN services, it was easy to picture an idyllic scene of thousands of individuals across the nation busily creating new ways of producing products and using information as well as new delivery and marketing methods for existing services - all aided and abetted by the much needed emerging standards required to actually harness modern communications technology. The American tradition of innovation is a heartening thing to watch in action. And it is very much active now in ways as small as Bart Henthorn's MINDS product and Phil Dempsey's grocery shopping by modem and as large as the emerging national ISDN data network or Tandy Corporation's announcement of an erasable/recordable compact laser disk.

Our look at 976 Scoopline this month shows the other side of this world. The small minds, seeking to carve an ever greater portion of a small pie for themselves rather than working with vision toward a larger pie for all. The bureaucrat, so pleased to display that information that supports his own ends, but masterfully adept at obfuscation, redirection, and delay if you sniff too near those truths he does not want publicly examined. We do hope the innovators and explorers, and clearly there are many working within US West Communications, can somehow get a bridle on their more intellectually ill blessed coworkers.

Jack Rickard, Editor

DENVER PC BOARDWATCH

LIST OF AREA CODE 303 ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JUNE 1988

TITLE	PHONE	DESCRIPTION	TYPE	BPS	SOFT	CITY	SYSP
Adelante 104/93	443-8292	Central/Latin America Social Issues	.IBM	3/12/24	Opus	Boulder	Zhahai Stewart
Aerie, The 104/40	292-3162	Science Fiction	.IBM	3/12	Opus	Denver	Leland Dirks
AmNet On-line 104/65	1-223-1297	Animal Rights Issues	.IBM	3/12	TBBS	Fl Collins	James Cherry
Arkham Public Library 104/48	444-7686	Tradewars Game/IBM Software 6PM-8AM	.IBM	3/12/24	Opus	Boulder	Neil Beatty
Aurora Chairman	340-1844	City of Aurora Council/Mayor Forum	.IBM	3/12	Chairman	Aurora	City of Aurora
Byte Shop 104/311	794-5065	Jokes / Adult Sections	.IBM	3-96HST	QuickBBS	Littleton	Dan O'neal
Cable Net Opus	987-9168	IBM Communications Shareware Downloads	.IBM	3/12	Opus	Lakewood	Ted Gilmore
CBA Information System	329-0159	Continental Basketball Association	.IBM	3/12	TBBS	Denver	???
Chivalry 104/46	761-1634	D&D - Jokes - Tradewars - Chess - QBBS	.IBM	3/12	QuickBBS	Aurora	Dax Davis
Christian Protocol	693-8791	Christian Messages - Bible Text	.IBM	3/12/24	TBBS	Denver	Ken Johansen
Club Micro 104/88	832-5850	*C*Language/Database/Communication Files	.IBM	3-96HST	Opus	Denver	Don Marguart
CMOS	322-4078	Colorado Mountain Operating Systems	.IBM	12/24	Minihost	???	Kevin Trutt
Coco County Airport 104/54	343-6707	TRS Color Computer Support	.IBM	3/12/24	Opus	Aurora	Ron Bihler
Colorado Broadcasters 104/42	572-6256	Commercial Radio Frequency Lists	.IBM	3/12	Opus	Denver	Lynn Osburn
Comm-Post, The	534-4646	Astronomy - Tandy 1000/2000 - Jokes	.IBM	3/12/24	TBBS	Denver	Brian Barte
Computers Unlimited	762-9122	Sanyo MBC-55X Support	.IBM	3/12	Fido	Englewood	Jack Campbell
Control Systems	458-6248	IBM/Compatibles Subscription Board	.IBM	3-96MIC	RBBS	Denver	Tom Parker/Bill Willis
CPM SIG INC 104/372	465-1313	Oldest User's Group in Area - CPM - IBM	.IBM	3/12/24	Fido	Broomfield	Al Lundquist
CSM-SPE Oil Patch 104/59	273-3239	CSM Petroleum Engineering Department	.IBM	3/12/24	Opus	Golden	Max Bordelon
Cyber-Zone, The 104/61	860-0126	Science Fiction	.IBM	3/12/24	QuickBBS	Denver	Jonathan Wood
Data Bank	494-0167	IBM Messages - Good Utilities	.IBM	3/12/24	TCOMM	???	Guido Binetti
Day's End 104/20	650-5636	Astronomy Files-Tell/SF Echoes/USA Today	.IBM	3-96HST	Opus	Denver	Chris Day
Denver Central 104/412	758-8720	Trojan List/Sports and Cooking Echoes	.IBM	3/12/24	Opus	Denver	Dana Palmblad
Denver Tech Computer	799-4813	Retail Store - SOO Xenix / C Language	.IBM	3-96HST	PC Board	Englewood	Rolf Anderson
Digger's Dungeon	452-6063	Ghoulsh Graveyard Theme	.IBM	3/12	???	Aurora	Grave Digger
Dog House, The	320-0501	IBM/Atari Downloads - FoRem Net Mail	.IBM	12/24	Forem	Denver	Lonnie Shinauit
Eagle's Nest	933-0701	General Messages/Downloads	.IBM	3/12/24	QuickBBS	Littleton	Ronald Olsen
Education 2000 104/29	449-9807	Education Issues Kindergarten - 12th	.IBM	3/12	TBBS	Boulder	Roger Salamen
eSoft Support	699-8222	eSoft Inc. TBBS Software Support	.IBM	3/12	TBBS	Aurora	Phil Becker
Eusebia 104/18	430-8376	Christian - Full KJV Bible Downloads	.IBM	3/12/24	TBBS	Federal Heights	Jim Queisner
Excalibur 104/39	497-6051	C Program Files - C Echo Area 5PM-8AM	.IBM	3/12/24	Opus	Boulder	Steve Roughton
Fido NBS 104/607	497-3934	National Bureau Standards - Jobs SIG	.IBM	3/12/24	Opus	Boulder	Cathy Nicolletti
FutureWave BBS 104/57	440-7425	Games/C Language/MIDI 6PM-7AM	.IBM	12/24	Opus	Boulder	Ross Sponholtz
Gay Community 104/19	795-1215	Messages / Downloads for Homosexuals	.IBM	3/12	QuickBBS	Littleton	???
Greater Clifton POBoard	1-241-1966	Grand Junction MUG - Ham/Packet Radio	.IBM	3/12	PC Board	Grand Junction	MUG of Grand Junction
Grizzly King	666-0824	Freeware/Colorado Outdoors/Programmers	.IBM	3/12	TBBS	Latayette	Bob McDuffee
Grotto, The	694-9050	Amiga, Pascal - Ebert Personal Computers	.IBM	3/12/24	TBBS	Aurora	Vincent Veritas
Holiday's Inn 104/507	699-7738	Colorado Backroad Exploring - C Language	.IBM	3/12/24	QuickBBS	Aurora	Steve Holiday
Hostlink Informational Service	755-3174	Laser Printing/Online Sales/Virus/Hacker	.IBM	3/12	QuickBBS	???	Charles Schulten
HP Haven 104/312	427-6976	Tradewars/On-line Games/ 5PM-7:30 AM	.IBM	3/12	QuickBBS	Westminster	Mark Willecke
Iguana's Den, The	771-5937	Teen Oriented - Filthy Language	.IBM	3/12	QuickBBS	Englewood	Kevin Meyer
Info-Net BBS	680-1648	Computer's Plus Board	.IBM	3/12/24	RBBS	Aurora	Computer's Plus
Into The Wind 104/63	939-9272	Support for Shamaal Software 10P-11A	.IBM	3/12/24	Opus	Boulder	Dana P'Simer
Investment Lounge	759-3721	Excellent Investment/Financial Topics	.IBM	3/12	TBBS	Aurora	Mark Greve
Isle of Man	447-1942	Gay Community BBS	.IBM	3/12	RBBS	Boulder	???
Lakewood Department of Safety	987-7388	Police Sponsored - Law Enforcement Msgs	.IBM	3/12	RBBS	Wheatridge	Larry Scheideman
Lodge, The	420-0305	Arvada Quick BBS Board	.IBM	12	QuickBBS	Arvada	Harold "Monty" Montrose

Manville Info Services 104/978	978-3946	Business Software / Apple Macintosh	IBM	3/12	Fido	Littleton	???
Master Work, The 104/55	341-6614	Recently Up - General Communications	IBM	12/24	Opus	Aurora	Roy Prickett
Maverick	1-434-4211	Hardware Sales - \$10 Annual Fee	IBM	3/12/24	RBBS	Grand Junction	David Fouts
Metamorphosis	1-772-7229	PCB-Echo Net/260 MB of Files/Online Game	IBM	3/12/24	PC Board	Lafayette	Tony Ferris
Micro World Informat	987-2671	RBBS-IBM-Commodore-Amiga-Atari 7PM-8AM	IBM	3/12	RBBS	Lakewood	Leonard Vandenberg
Microlink B 104/108	972-9600	Good Download Library - USA Today News	IBM	3-96HST	TBBS	Littleton	Girard Westenberg
Microlink C 104/53	455-9600	Professional Computer Sales Co.	IBM	3/12/24	TBBS	Denver	John Anderson
Microlink D 104/711	526-9642	*Excellent* PC Software Download Files	IBM	3-96HST	QuickBBS	Golden	???
Microlink Minus Two 104/204	329-9598	Professional Computer Sales Inc.	IBM	3/12	TBBS	Denver	Paul Smith
MicroManiacs BBS	673-9470	CoreWars Game Forum - GDP Technologies	IBM	3/12/24	Wildcat	Lafayette	Tom Gettys
Mile Hi CUSS 104/614	698-9924	CUSS Computer Use in Social Services	IBM	3-96HST	Fido	Denver	Chuck Mastriani
Mile Hi Tech Fidonet 104/56	973-9338	Fido News/List	IBM	3/12/24	TBBS	Littleton	Oscar Barlow
Mile High Net	671-7308	Fido Board	IBM	3/12/24	Fido	Aurora	Dave Miller
Motherboard	1-241-1419	Grand Junction - Good Software PC BOARD	IBM	3/12/24	PC Board	Grand Junction	Jennifer Dillon
Night House	252-8940	Adult Message Areas	IBM	3/12	QuickBBS	Northglenn	Night Man??
NoName BBS	988-5765	Selected Quality Shareware - New Users	IBM	3/12/24	Minihost	Lakewood	Jon Johnson
Nurse Link 104/52	270-4936	UHSC School of Nursing	IBM	3/12/24	TBBS	Littleton	Chuck Mastriani
OKY BBS	494-0533	Armenian Electronics Consultant	IBM	3/12/24	QuickBBS	Boulder	Onnig Kouyoumdjian
On-Line Consulting 104/45	449-5251	Consultant Directory/Desktop Publishing	IBM	3/12/24	Opus	Estes Park	Lee Lasson
On-Line Shopping Service	442-5125	Boulder Home Grocery Delivery \$5 + 5%	IBM	3/12	Chairman	Boulder	Pete Dempsey
P2B2 S 104/51	329-3337	Public Psychiatry / AI Themes 6PM-8AM	IBM	3/12/24	QuickBBS	Denver	Claude Warren
PCjr-NET 104/904	789-4610	IBM PC Jr. Technical Info /Radio Comm	IBM	3-96HST	Opus	Englewood	Phil Kaiser
Phoenix TBBS 104/739	841-9570	USA Today Newspaper/4 lines/INFO-MAT Mag	IBM	3-96HST	TBBS	Parker	Larry Kayser
Pinecliff 104/28	444-7073	170 Meg - Online Order for CDB Systems	IBM	3/12/24	Opus	Boulder	Craig Baker
Professional System, The	740-2223	Writers, Lawyers, EDP Auditors	IBM	3/12	TBBS	Littleton	Bob Voorhees
Quick BBS Support Board 104/24	423-3114	Home of Quick BBS Software	IBM	3/12/24	QuickBBS	Arvada	Adam Hudson
R.A.B.I.T.	757-9509	Colorado Highway Department - Planning	IBM	3/12	TBBS	Denver	Colorado Dept. Highways
Randolph Society Info Network	665-9152	Philosophy/Church of Illumination	IBM	3/12	TBBS	Louisville	Harold Piser
Rocky Mountain RBBS	750-2107	INFO NEEDED	IBM	3/12	RBBS	Aurora	Steve Kornreich
Serendipity	465-3729	IBM, Epon Equity, TRS-80 Club Msgs	IBM	3/12	RBBS		Terry Connolly
Silver Streak, The	790-2534	Science/Engineering/Turbo Pascal Utils	IBM	3/12/24	Wildcat	Littleton	Dennis McKinney
Smurf World	722-2065	Something to Offend Everyone	IBM	3/12/24	BBS-PC	Denver	Papa Smurf
SnarfQuest 104/604	973-9402	Hot 386 Micro with Games/ReadMACs	IBM	3/12/24	Opus	Littleton	John Denny
Sound Doctrine Bulletin Board	680-7209	Christian BBS / Sound Doctrine Church	IBM	3/12	TBBS	Aurora	Tim Williams
Space Environment Service Ctr	497-5000	NOAA Solar Flare Forecast / Advisory	IBM	3/12	PBBS	Boulder	US Dept of Commerce
Space Network	494-8446	Space Exploration Information	IBM	3/12/24	TBBS	Boulder	Tom Meyer
Steamboat Information	1-879-6741	Info on Steamboat Springs Area	IBM	3/12	TBBS	Steamboat Springs	???
TBBS Net 104/23	699-9248	The Byread Board System Support	IBM	3/12/24	TBBS	Aurora	Phil Becker/eSoft Inc.
Torus Public BBS 104/43	469-7161	MINDS AI TextBase Indexer Support	IBM	3-96HST	Opus	Broomfield	Todd Hill
Torus RegUser 104/44	341-1404	MINDS Online Textbase - USA TODAY	IBM	3-96HST	Opus	Aurora	Bar Henthorn
The 8th Sea 104/610	252-9235	Net 104 Coordinator - Lots of Echomail	IBM	3/12/24	QuickBBS	Northglenn	Rod Lamping
This End Up 104/30	430-1585	Denver PC Boardwatch/USA Today 10PM-10AM	IBM	3/12	Opus	Westminster	Steve Carnes
Trout Unlimited	499-2828	Trout Fishing / Water Condition Reports	IBM	3/12	Fido	Boulder	Ralph Stewart
Twin Peaks PCBoard	1-651-0225	On-line Games	IBM	3/12/24	PCBoard	Longmont	Ken Krueger
Value Line, The	363-0422	Electronics/Communications 8PM-5AM	IBM	3/12	Wildcat	Aurora	Chris Millikin
Watchdesk, The 104/66	450-0822	Safety - Arson - Hazardous Material	IBM	3/12/24	QuickBBS	Thornton	Emit Hurdlebrink
Waterson Computer Club	977-7096	Martin Marietta Employees - 5PM-7AM	IBM	3/12/24	RBBS	Denver	Ken Beaudrie
World Service 104/413	860-0667	British Flavored BBS 11PM-7AM	IBM	3/12	Opus		Nicholl Baroque
Aurora Multi-System	745-3414	Amiga/Atari/IBM/Apple/Commodore	Amiga	3/12/24	BBS-PC	Aurora	Greg Kanis
C.D. Players	825-0419	Computer Discount On-line Store/Amiga	Amiga	3/12/24	TBBS	Denver	Tony Scott
Greenline	429-7145	Amiga Messages and Downloads	Amiga	3/12	BBS-PC	Broomfield	Phil Green
Mile High Software Exchange	430-0243	Commodore Amiga Public Domain Software	Amiga	3/12	ALFA-III	Arvada	Rick Lowry
Aces High	329-6579	Programming/General Messages	Apple	3/12	GBBS	Denver	Glenn Hayhurst

DENVER PC BOARDWATCH

LIST OF AREA CODE 303 ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JUNE 1988

TITLE	PHONE	DESCRIPTION	TYPE	BPS	SOFT	CITY	SYSOP
APSNat	693-6737	Aurora Public Schools Network	Apple	3/12/24	GBBS	Aurora	Columbia Middle School
Box's Cabin, The	424-9185	Apple / Technical Notes	Apple	3/12/24	Protree	Arvada	Kent Roberts
C.A.C.H.E.	745-4960	CO Apple & Compatible Home Enthusiasts	Apple	3/12/24	GBBS	Denver	???
Club House, The	756-9134	RP Games - Golf Format - Messages	Apple	3/12	GBBS	Denver	Pinsetter
Code 5150	696-6673	Lunatic Discussions / Crazy People	Apple	3/12/24	GBBS	Aurora	Chris Thilges (Grunt)
Cutting Board, The	427-2413	20 MB / TONS of Stuff	Apple	3-17,400	GBBS	Lakewood	Steve Failer
Dark Side of the Moon	469-3437	Matchmaking / Dating for Teens	Apple	3/12	Protree	Broomfield	Marc Anderson
Denver Deaf-Net	989-9245	Hearing Impaired/Computing	Apple	3/12	Protree	Lakewood	David Shaneman
Discovery, The	449-8946	Music / General Messages	Apple	3/12	Alphall	Denver	???
DJ	789-0500	Galactic Conquest Game On-line 40 MB	Apple	3-96HST	GBBS	Englewood	David Metzel
Funny Farm	989-0915	Apple Only BBS	Apple	12/24	???	Lakewood	???
GateKeeper, The	755-4210	Gateway High School	Apple	3/12	GBBS	Aurora	???
Genesis Project	287-8267	Apple II General	Apple	3/12/24	Protree	Commerce City	Gene Humbert
Greeley-Com-Net	1-351-8861	Modern Users Board	Apple	3/12/24	GBBS	Greeley	Lowell Shatraw
Hollows, The	428-0372	Smoke Signal Software/PRIME BBS Support	Apple	3/12	Protree	Denver	Vince Cooper
L.A.I. Support	420-3568	Primary GBBS Pro Software Support BBS	Apple	3/12/24	GBBS	Arvada	Lance Taylor-Warren
LES-COM-NET	233-5824	Lesley College Communications Network	Apple	3/12	GBBS	Lakewood	George Willett
Mom's BBS	690-4913	General Message/Socializing	Apple	3/12	ALFA-III	???	???
NCC 1701 Enterprise	287-6732	Star Trek Theme	Apple	3/12/24	Protree	Commerce City	???
Next Generation	425-6235	Online Games	Apple	12/24	Protree	Golden	Tony ???
Odyssey III	691-0169	Adult(18) / Sex Oriented 5PM-8AM	Apple	3/12	GBBS	Denver	Sundance
Playhouse	286-7399	Adult / Jokes / Sexual Themes	Apple	3/12	Protree	Denver	???
Sheridan & Associates	935-1489	Buy / Sell / Trade - Chess History	Apple	3/12	GBBS	Denver	Ken Sizer
Timberline Saloon	798-1207	Apple II - Foul Language a Specialty	Apple	3/12	GBBS	Sam Walsh	
Trekker World	745-9530	Star Trek Fanzine 7AM-10PM	Apple	3	GBBS	Aurora	Robert Morgan
Four Wheeling BBS, The	469-4954	Jeeping / Camping / Outdoors	Atari	3/12	Forum	Broomfield	John Ferguson
Generic BBS	1-857-6881	Titanic Historical Society Information	Atari	3/12	BBS Exp	Fort Lupton	L.A. Sneeringer
Mile High Forum	431-1404	Outstanding Atari ST Database - HST 9600	Atari	3-96HST	Forum	Arvada	???
Mycroft	777-8898	Horizon Computer/National Atari BBS List	Atari	3/12	TODAMIS	Denver	Phil Michaelson
Ron and Shannons BBS	978-0298	Atari Support 5.4 MB XE 130	Atari	3/12/24	OASIS	Englewood	Ron/Shannon Sellers
Skyline Computers	457-0320	Atari ST Support, Files, etc.	Atari	3/12/24	Forum	Denver	Dave Lloyd
Vault, The	796-0539	USAF/ZMAG Member	Atari	3/12	???	???	???
White Runes of Tinuviel	972-8566	Tolkien Subjects/Dungeons and Dragons	Atari	3/12	Stadel	Littleton	Andy Strasheim
Wildcard	1-776-1125	Atari BBS 9PM-6AM Weekdays	Atari	3/12	???	Longmont	Gary Wells
ZAPI	367-4103	Atari/ST/8 Bit	Atari	3/12	Oasis	Aurora	???
Info Zone, The	988-2133	General Discussion/File Transfers	C-128	3	C-Net	Lakewood	Bill Willoughby
Phasar	745-4305	Teen Conversation - Advice Column	C-128	3/12	C-Net	Aurora	Roy Rush
Regimental Headquarters	375-9556	Commodore - Military Theme	C-128	3/12	C-Net	Denver	Bob Greear
Albuquerque Starport	494-7224	Commodore Network Systems International	C-64	3/12	C-Net	Boulder	Greystoke Mindmaster
Colorado Commodore Club BBS	751-3448	Commodore Computer Info	C-64	3/12	C-Net	Northglenn	???
Comm-Net Information Service	366-7177	C-64/C-128/Amiga Info-Dnlds-Messages *	C-64	3/12	Custom	Aurora	Tele-Net Inc.
Comm-Net Information Service	366-2744	C-64/C-128/Amiga Info-Dnlds-Messages *	C-64	3/12	Custom	Aurora	Tele-Net Inc.
Comm-Net Information Service	366-2341	Excellent Info for Commodore Products *	C-64	3/12	Custom	Aurora	Tele-Net Inc.
Comm-Net Information Service	340-2473	C-64/C-128/Amiga Info-Dnlds-Messages *	C-64	3/12	Custom	Aurora	Tele-Net Inc.
Comm-Net Information Service	366-3898	Service Jokes/Weather/Sports/Database *	C-64	3/12	Custom	Aurora	Tele-Net Inc.
Dragon's Shadow	841-3721	Fantasy / Games - Unique Logon Screen	C-64	3	C-Net	Parker	???
Enterprise	320-6470	Commodore Board with 3.6 MB Software	C-64	3/12	C-Net	Denver	Mr. Spock

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 Temple of Doom 771-9523
 GLOBAL Information 286-7914

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 Commodore Board with Chilly Theme C-64 3
 Commodore with Laboratory Theme C-64 3/12
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 Foul Language - C-64 BBS List C-64 3/12
 Commodore Board C-64 3/12
 Commodore C-64 3/12
 Royal Theme - Complete with King C-64 3/12
 Areas Longest Logon Message C-64 3/12
 Commodore Messages/Downloads/Ads C-64 3/12
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 Franklin Messages Franklin 3
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 Denver Macintosh Users Group MAC 3-66HST
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 ??? Denver Professor Beaker
 C-Net Westminster Richard Miller
 C-Net Arvada The Nun
 C-Net Denver Forulo Pazuizo
 C-Net Westminster The Lineman
 C-Net Lakewood Bob Hennessy
 C-Net Arvada Spam-Master
 Ivory Denver ???
 ZBYE Golden John Holmgren
 PBBS Golden Steve Shockley
 Fido Aurora Jim Turner
 Custom Boulder Natl. Bureau of Stds.
 TBBS Aurora Dale Bucknam
 DYM Englewood Bob Simpson
 Network Littleton Experience Software
 PBBS Wheatridge Larry Means
 PBBS Denver Bucky Carr
 TBBS Fort Collins Rob Diehl
 GBBS Louisville Ed Fenner
RedRyder Denver Bill Wright
 RBBS Littleton Steve Sande
 WWIV Denver Jon Taylor
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CONTENTS

<i>Area Code Changes</i>	3
<i>Bell No Longer Tolls</i>	1
<i>Dell Computer Drops Prices</i>	3
<i>Editor's Notes</i>	11
<i>Fax Popularity Growing</i>	3
<i>Free On-line Stock Forecasts</i>	8
<i>Hot 386 Motherboard Upgrade</i>	4
<i>IBM Machines to Read/Write MAC Disks</i> ...	1
<i>LaserWriting Desktop Publishing</i>	5
<i>Local BBS Statistics</i>	7
<i>More on WordPerfect</i>	4
<i>New AT&T Head</i>	4
<i>New York City Education BBS</i>	8
<i>Office of the President</i>	3
<i>On-Line Shopping Service</i>	6
<i>PC Answering Machine</i>	4
<i>PC World - Moscow Edition</i>	1
<i>Programmer's BBS</i>	7
<i>Scoopline 976 Service</i>	10
<i>Silver Streak BBS</i>	6
<i>SnarfQuest BBS</i>	6
<i>Super Unarchive Utility - NARC20</i>	9
<i>Tandy Announces Read/Write CD</i>	1
<i>The Mind is a Terrible Thing</i>	5
<i>Unix/Xenix BBS Software</i>	8
<i>US Navy Norfolk BBS</i>	8
<i>US Sprint Mired in Billing</i>	3
<i>US West/Mountain Bell Goes Digital</i>	1
<i>Verified List of 198 BBS</i>	12

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